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METHODS AND EQUIPMENT FOR HOME LAUNDERING

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LAUNDERING is drudgery to many housewives, but much of the labor can be lightened by providing adequate, well-arranged equipment and using efficient methods. This bulletin gives suggestions for the arrangement of a home laundry and for the selection and care of equipment. A logical method of doing an ordinary family washing is included, as well as a discussion of soaps, water, starches, and other laundry supplies.

This bulletin is a revision of and supersedes Farmers' Bulletin 1099, entitled "Home Laundering."

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METHODS AND EQUIPMENT FOR HOME LAUNDERING

Prepared by the Division of Textiles and Clothing, Bureau of Home Economics

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WASHING AND IRONING are among the hardest of the regular household tasks, but it is very often possible to lessen the work considerably by careful thought and planning. Many housekeepers are solving the problem by patronizing commercial establishments for certain types of work, and some are organizing community laundries. If all the laundry must be done in the home, hot and cold running water, labor-saving devices, convenient arrangement of equipment, and good methods will reduce the time and labor required.

THE LAUNDRY ROOM

A separate laundry room is desirable, though in many houses the kitchen must be used for this purpose. The odors and steam from laundry work, however, are disagreeable in a kitchen, and the handling of soiled clothing in any room in which food is prepared is highly objectionable. If clothes must be washed in the kitchen the sorting should be done elsewhere.

In some sections it is considered preferable to have the washing done on a screened porch or in a room outside of the house; otherwise the best place for a laundry is usually either next to the kitchen or in the basement directly below it. The latter arrangement makes it possible to use the same chimney and oftentimes the same pipes for water supply and drainage.

The size of the laundry should depend not only upon the number of articles of equipment, but upon their size. A completely equipped home laundry with articles of regulation size requires about 200 square feet. Good lighting is necessary for good laundry work, and washing and ironing equipment should be so placed that natural light strikes it from the side. The common practice of locating

stationary tubs or trays under a basement window brings them so close to the wall that the light from a relatively high window does not strike them. If the window arrangement is poor, a good source of properly directed artificial light should be placed over each large piece of equipment. Proper insulation of all wiring, cords, and electrical devices is especially important in the laundry, where the worker often touches them with wet hands and where the floor and walls are damp.

Doors and windows should be so placed as to give thorough ventilation, on account of the steam, odors, and heat unavoidable in washing. The walls should be treated in such a way that they are not affected by steam and should be light in color. Several coats of good quality oil paint give a satisfactory finish. If enamel paint is used the walls will be washable.[1]

A laundry floor should be of material that wears well, is not too hard for the feet, does not soak water or get slippery when wet, and is easily cleaned. Of the various materials used, wood and concrete are the most common. Concrete has the advantage that it is not affected by water, can be fitted with a drain, and is not slippery. It is, however, fatiguing to stand on, but this may be overcome somewhat by the use of rubber mats or low wooden platforms. These have the additional advantage of being safety precautions if electrical devices are being used.[2] Linoleum, particularly when cemented down so that water can not get under it, is in some ways a satisfactory covering for a laundry floor of either wood or concrete. A more detailed discussion of this subject is given in another bulletin of this series.[3]

The equipment may often be so placed that the room is divided into a washing and an ironing section. The position of stationary pieces will, of course, largely determine this; but benches, tables, and other movable ones may be arranged in the order in which the work is to be done, with consequent saving of time and labor. A closet or cupboard for holding equipment and supplies is almost a necessity. It should be placed so that it is convenient to both the part of the room holding the washing outfit and the part reserved for ironing. The closet should be high enough to hold the ironing board and large enough for a washboard, starching outfit, irons, and other small equipment, and should have shelves for soap, bluing, and such supplies. A list of equipment is given on page 16.

An arrangement that can be adapted to a costly or an inexpensively equipped home laundry is shown in Figure 1. The drier and ironer may be omitted without destroying the unity of the scheme. The larger table is so placed that it can be used for sorting the soiled clothes, and, with the folding rack above, also furnishes a convenient place for the finished garments after they are ironed either on the board or on the ironer.

Sometimes the plumbing arrangements in the house demand that the tubs be left near the wall. A line drawn across the plan behind the tubs will show a good though not so ideal an arrangement for such a situation. Hot and cold water can be piped to the tubs; or,

[1] U. S. Dept. Agr., Farmers' Bul. 1452, Painting on the Farm.
[2] U. S. Dept. Com., Bur. Standards Circ. 75, Safety for the Household.
[3] U. S. Dept. Agr., Farmers' Bul. 1219, Floors and Floor Coverings.

if this is not possible, any other source of water may be located close at hand as indicated. The stove is placed near the washer, so that the clothes can be transferred easily if they are to be boiled. It is also near the shelf or small table for starching, and the ironing board, in case irons must be heated on it. The closet is located in the ironing area, but is very close to the washing equipment. The clothes chute, the supply closet, and the closet for the ironing board make a compact fixture if constructed as one unit.

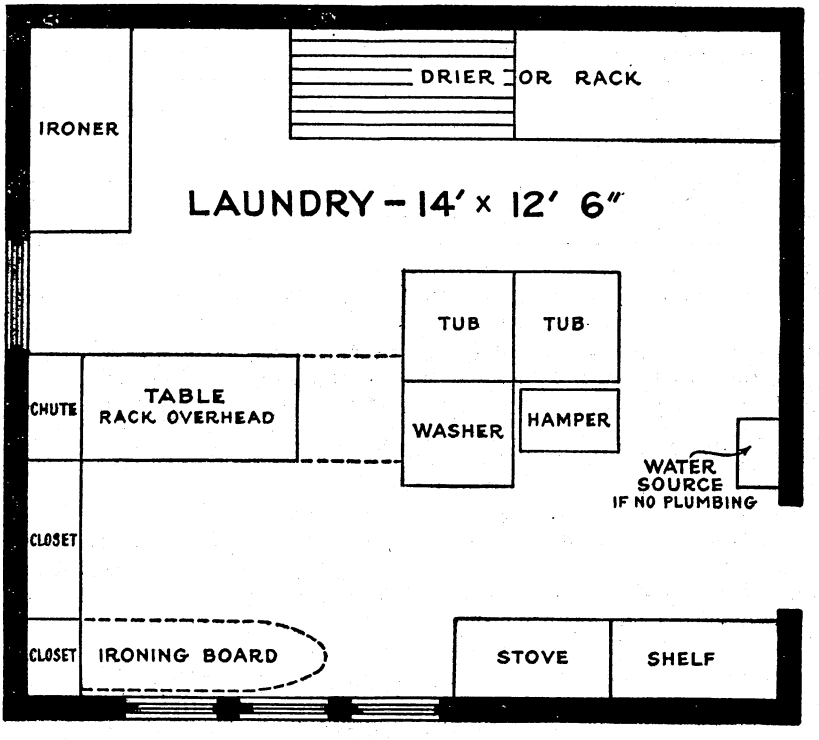


FIG. 1.—Arrangement of a home laundry

EQUIPMENT

Laundry equipment should be chosen as well as placed from the point of view of service and of the convenience and comfort of the worker. The working surface of nearly all laundry equipment is too low. This places the woman operating it so out of balance that she is soon fatigued. The top rim of the tub should be placed so that she does not stoop from the shoulders. A portable washtub may be raised or lowered to the right height by means of a suitable bench. Little of the washing process is done in the bottom of the tub, the working height being about halfway up the side. If the top of the washboard is too high it may be lowered by cutting off part of the legs. The ironing table or board should be so placed that force from the shoulder can be applied easily; 31 or 32 inches is a good average height.

WASHING EQUIPMENT

TUBS

Tubs should be durable and strong. Of the portable washtubs, the galvanized iron is the most common type on the market. They are fairly light, durable, and easy to keep clean, and are an improvement over the old-fashioned wooden kind. Fiber tubs are also satisfactory and weigh less than the galvanized iron. Hot and cold water can be piped to a portable tub as well as to a more expensive stationary one. A flexible rubber hose can be used as a siphon to empty such tubs, and will save much heavy lifting. To make such a siphon fill a short length of the hose with water, close the ends and invert it, placing one end under the surface of the water and the other at a lower level. Open without removing the shorter end from under the surface of the water.

Galvanized iron, soapstone, and a composition resembling it, as well as so-called porcelain and enameled cast iron are all used for set tubs. Enameled iron and porcelain, though more expensive than the others, have the advantages of being easier to clean and of being light in color, so that the soiled parts of the clothes can be seen quickly. Cement or similar composition is objectionable, as the surface is not so smooth and is easily damaged. Hinged covers keep out the dirt, and if properly finished make good working surfaces. It is better to provide two tubs, although only one is essential if there is a washing machine.

WASHBOARDS

Even when a washing machine is available, a washboard is generally needed for neckbands, cuffs, and other very soiled parts of garments, and for heavy material, although a stiff brush and a table fitted for draining off the surplus water may be very conveniently used if there is much of this kind of work to be done. The rubbing surface of a washboard may be glass or metal; if the latter, a rustproof kind is of course best. In any case the frame should be substantial. A washboard will give longer service if cleaned and dried after use. It is dangerous to use a washboard after the surface becomes rough or broken, as the hands may be seriously cut, and clothes are often badly torn on such boards.

WRINGERS

A wringer, whether operated by hand or power, saves labor and makes the clothes much drier than when wrung by hand. One with good quality firm rubber rollers, ball bearings, heavy springs, inclosed gears, and reversible action is most economical and convenient in the long run. If it is permanently attached to the washing machine an added convenience is an arrangement whereby it may be securely locked in a number of different positions. An easily operated and very accessible safety release device which adequately separates the rolls is also essential. Fingers, and even the hair, are sometimes caught in wringers and serious injuries caused. An automatic switch which shuts off the current in case of overloading

is valuable if electricity is the source of power. Wringers can not be operated by the water power ordinarily available.

Much care has been taken recently by manufacturers to provide special conveniences. Wringers with hinged or swinging clamps can be obtained for use on round tubs. Others with a wooden crossbar and wooden blocks that come in contact with the tub are excellent, since metal clamps may injure slate or soapstone tubs. If there is a broad framework around the top of the tub, a wringer with an extension clamp may be necessary. Wringers with metal frames are available and are gaining in popularity, although many housewives prefer those of wood.

When using a wringer, adjust the pressure to the kind and quantity of clothes being wrung. If there are two pressure screws, tighten them evenly and at the same time. After use, loosen the pressure screws and wash the rollers thoroughly. Occasionally they may need to be wiped with a cloth moistened with a few drops of kerosene to remove discoloration, but wash off all traces of the kerosene, because it softens the rubber. From time to time the gears should be oiled with good machine oil. Protect the wringer from dust by covering with a cloth bag.

LAUNDRY STOVES

If the clothes are to be boiled and must be transferred to and from the washer or tub, a low stove is essential. Specially constructed stoves with arrangements for heating a tank of water are available. Three-burner gas plates which give the additional burner for starch-making are useful.

CLOTHES BOILERS

Wash boilers are made of copper, galvanized iron, and tinware (iron or steel coated with pure tin). The solid copper boiler is the most durable. The tinware boiler with copper bottom and rim also gives good service, and is less expensive than the all copper. A tinware boiler should be dried as soon as possible after use to prevent rusting. A faucet may be soldered into the end of the boiler to facilitate emptying.

WASHING DEVICES

Some helpful washing devices are on the market. One is a perforated funnel made to fit in a wash boiler. This works on the same principle as a coffee percolator and increases the circulation of water through the clothes. The funnel-on-a-stick type of washer, which was the forerunner of the vacuum-cup washing machine, makes it possible to wash very soiled or infected clothing without immersing the hands. The stick can also be used to lift the wet clothes from the boiler to the tub, although a smooth broom stick is equally satisfactory. What might be termed " portable washers " are also available. One such type is a pump operated by an electric motor which maintains the circulation of water in the tub and keeps the clothes in motion. Another consists of a set of inverted cones which act on the vacuum principle mentioned below. This can be fastened to the tub and operated by hand or motor. All of these devices are im-

provements over the washboard method, but the open tub has obvious disadvantages no matter how used.

WASHING MACHINES

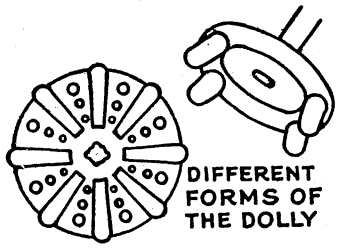
Washing machines (fig. 2) save time and labor and are almost indispensable if large washings are to be done at home. In general, clothes last longer if washed in a good machine than if rubbed on a washboard. Although there are over 100 makes of washing machines, the various designs can be classified into 5 types, most of which can be operated by hand, water power, gasoline engine, or electricity. All of the most recent rely for their efficiency upon forcing the soapy water through the clothes by agitating the clothes and the water and thus displacing the dirt. They differ, within their type, only in detail of construction.

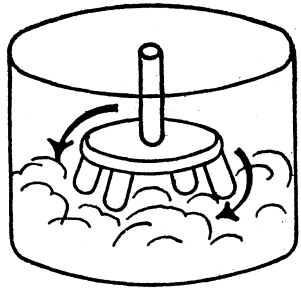
The cylinder type.—The cylinder washers usually have a perforated cylinder of metal or wood for the clothes which revolves in an outer container holding the soap and water. Such washers are similar to those used in commercial laundries. The cylinder has projections or baffles on the inner surface which carry the clothes along as it revolves and then drop them back into the water when they reach their highest point. The direction in which the cylinder is rotating is reversed periodically, the number of revolutions made in the same direction varying with different machines. By thus reversing the direction in which the clothes are traveling more agitation is secured and the clothes are less likely to become tangled. Some types have in addition a propeller which assists in agitating the clothes. In a second type of cylinder machine the cylinder is not circular but is in the form of a flattened perforated box, which moves back and forth so that the clothes tumble from one end to the other.

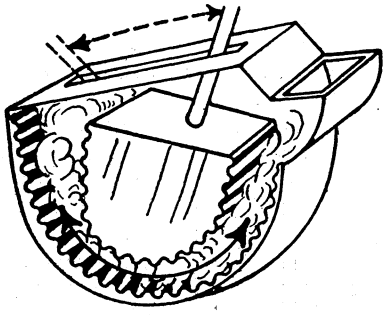
The dolly type.—The dolly or agitator type is especially common as a hand-power machine. It usually has a revolving device known as a dolly suspended in the center of the tub and fastened either to the lid or to the bottom. Many persons prefer it in the bottom, as the mechanism on the top is sometimes in the way. This dolly reverses its direction periodically, and thus carries the clothes first in one direction and then in the other. Since the sides and bottom of the tub are usually corrugated, some of the cleansing is accomplished by the friction. The tubs are practically always of wood. A disk may be substituted for the dolly, and some all-metal machines of this type have a disk with blunt bladelike projections placed in the bottom of the tub. Many of these modified dollies are called agitators. The dolly machines are very efficient for washing heavy clothes. Some manufacturers furnish both the dolly and a flat agitator with their machines, in order that the agitator may be used instead of the dolly when finer fabrics are being washed.

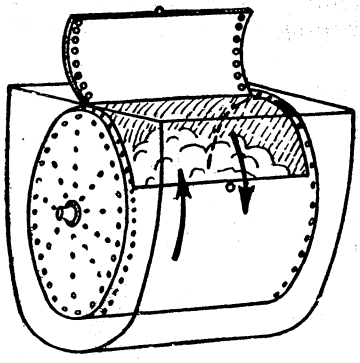
The oscillating type.—The oscillating machines have a metal or wooden tub which rocks or tilts back and forth. This may be suspended in a frame or placed in a cabinet. The clothes are thus tossed from one end of the tub to the other, while the water moves in the direction of a figure 8 or some variation of this, depending upon the shape of the tub.

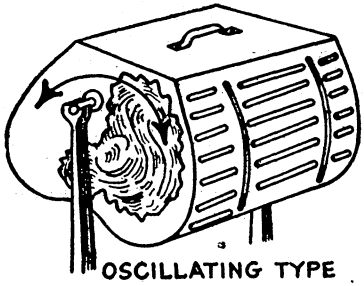
The vacuum-cup type.—The vacuum-cup machine is a development of the funnel-on-a-stick washing device sometimes used in open

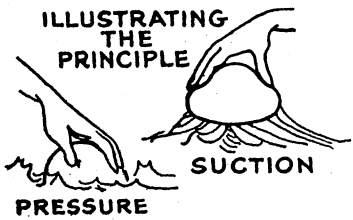












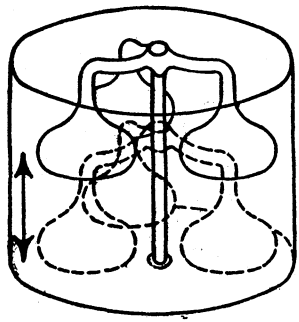


FIG. 2.—Diagrams showing chief differences in the washing principles used in the common types of washing machines

tubs. An inverted funnel, often called a vacuum cup or cone, is plunged down on the clothes, forcing the water through them on the downward stroke. As it lifts, the suction formed pulls the water back through the clothes. The simpler of these machines have only one cup, which moves up and down. Others have two, three, or four cups. There may be a device that shifts the tub with each stroke of the cups or changes the position of the cups in the tub by moving them slightly at the top of each stroke. The cups can be raised or lowered, according to the level of the water and clothes in the tub.

The washboard type.—The washboard type is not very common now, and only hand-power machines are so constructed. They usually have a wooden tub with two curved washboards so placed that the corrugated surfaces face each other. The upper board is moved back and forth by means of a lever, or, in some cases, both boards are moved at the same time but in opposite directions. Some of the machines do not have covers. These are unpleasant to operate and allow the water to cool rapidly.

CHOOSING A WASHING MACHINE

Most of the types of washing machines described may be run by hand, water power, gasoline engine,[4] or electricity. If a hand-power machine is chosen, the lever or wheel by means of which it is operated should be of convenient height and arranged to carry the load with the least strain on the arm. The machine should run with a steady, not jerky, motion.

Water power is not satisfactory unless there is a pressure of 15 to 20 pounds to the square inch at the faucet and a flow of 4 to 6 gallon per minute.

If an electric machine is being purchased, the current specifications of the local source of power must be known and given in the order. It is necessary to state the voltage, whether the current is direct or alternating, and if alternating, the cycle. Properly covered mechanism is advisable as a safety precaution as well as from the standpoint of keeping dirt away from the motor. Inclosed gearing is always more satisfactory than belts which are in the way and require tightening. Some belts have automatic tighteners, however. Unless the motor has been constructed water-tight, it should be located where there is little chance of its getting wet. Many machines have flanged tops which help direct any splashed water back into the tub.

In purchasing any type of machine the following are important points to consider:

Easy-rolling casters are helpful. They facilitate moving the machine, as is often necessary in the course of its life or even during one washing. On the other hand, a method of fixing it firmly in place so that it will not move around while being operated is necessary, if it vibrates badly. This is often the case with machines run by motors or engines.

The condition under which a machine is to be used should be carefully considered. A machine that must be kept in the kitchen or

[4] U. S. Dept. Agr., **Farmers' Bul. 1013, Practical Hints on Running a Gas Engine.**

on a porch should be especially compact, easy to move, and if possible have a flat top that can be used as a working surface between wash days.

The size should depend entirely upon the average washing that is to be done. Machines of all sizes can be obtained, from very small ones, intended only for infants' clothing, up to twin washers, consisting of two machines which are placed together and can be run simultaneously.

The ease and need of lubrication are important. Many machines have their mechanism packed in heavy grease and need little attention for two or three years. The possibility of grease from the gearing entering the tub and becoming deposited upon the clothes should also be investigated. The noise of operation is worth considering.

A machine of simple construction with a relatively small number of parts is always a wise choice. It is well to buy of a reputable firm which has a repair service as part of its organization. The best mechanical devices sometimes need repairs, and the matter of obtaining these should be investigated when the washer is purchased.

The strength and rigidity of the frame are important. Adjustable legs or three legs instead of four help in a laundry where the floor is likely to be uneven. If the machine stands well above the floor it is easier to clean under it. If the cylinder type of washer is chosen, the cylinder should be as light in weight as is compatible with strength, since it is necesary to remove the cylinder from the machine in order to dry and clean it thoroughly.

The water outlet should be more than a mere bunghole. A built-in faucet to which a hose can be attached is excellent. When installing the machine proper drain facilities should be provided, and if possible hot and cold water should be piped directly to it or close enough so that hose connections can be made. No rigid piping should be connected to the washing machine. It is well to have the water faucets far enough away so that they can not be struck by any moving part of the machine. Some washers have gas burners fastened underneath, which can be used to heat all the water or merely to maintain the same temperature throughout the washing. Too long and frequent use of these burners may affect the bottom of the tub and shorten the life of the machine.

Although the best tubs of cedar give excellent service, a wooden tub is more likely to warp and become rough than a metal one. The latter is also perhaps more sanitary in the long run.

The type of wringer that comes with the machine should also be investigated (p. 4). Some washers have arrangements for drying by centrifugal action (p. 11).

CARE OF A WASHING MACHINE

Proper use and care will lengthen the life of a washing machine as well as any other mechanical device.

Wash the correct amount of clothes in your machine as specified by the manufacturer. Overloading is hard on the clothes and the machine. The water line is marked on most machines. Too much water causes excessive splashing and in many instances cuts down the efficiency of the washer greatly.

Cleanliness is of great importance. After using rinse the machine thoroughly with hot water, operate it for a short time, drain, and dry. Leave the drain faucet open and prop the lid up an inch or two to allow free circulation of air during the time it is not in use. In the case of wooden tubs fill with cold water before using again, to swell the wood and prevent leaks. Cylinders should be removed and thoroughly dried. Drying metal tubs will prevent much discoloration.

Avoid the use of ordinary scouring powders to remove stains.[5] Very fine scouring agents, such as whiting, may be used safely. Hot vinegar is also useful in removing obstinate stains. Galvanized iron is iron coated with a thin film of zinc. Hard water is likely to deposit a zinc compound on galvanized-iron tubs, and washing sodas also attack this material. A paste of whiting and kerosene will remove this discoloration, but should be carefully rinsed out before using the tub again. Dilute acids can also be used, but with the same precaution. A greenish compound, called verdigris, which often forms upon copper tubs, can be removed by a paste of whiting and oxalic acid (poison), or by a solution of soapsuds and ammonia. Such tubs are usually made with a heavy tin coating on the copper. Do not scratch this tin coating with coarse cleaning compounds.

Study the booklet furnished by the manufacturer of the machine and oil it according to his directions. Lubrication is necessary for every mechanical device, and is a most important point in the proper care of a washer. The frame of a machine may be kept from rusting by an occasional rubbing with oil.

If an electric machine is used, pull out the electric plug when leaving the machine between wash days and coil the connecting cord where it will not collect moisture or dirt. Do not lubricate or adjust any part of the washer while the cord is connected to the current source.

STARCHING UTENSILS

The starching outfit consists of a saucepan or double boiler, a tablespoon, a teaspoon, a measuring cup, a strainer, and a large pan or pail. Kitchen utensils, if free from rust and stains, may be used, but time is sometimes saved by having a special set for this purpose.

CLOTHES BASKETS

Baskets of various materials are used for carrying wet and clean clothes and for holding soiled clothes as they collect. Those used for the latter purpose usually have covers and are spoken of as hampers. Bags made of material that may be washed with the clothes each week will answer the same purpose as the hamper. Clothes baskets should be kept clean by lining them with washable material, such as oilcloth or muslin, or with heavy paper that can be renewed readily. Oilcloth is preferable if the basket is to be placed on the ground where dirt and moisture can enter through the open meshes.

[5] U. S. Dept. Agr., Farmers' Bul. 1180, Housecleaning Made Easier.

DRYING EQUIPMENT

CLOTHESLINES, CLOTHES DRIERS, AND CLOTHESPINS

The common clotheslines are cotton or hemp rope and galvanized or copper wire. The wire lines can be left out permanently and can be easily cleaned with a damp cloth, but thin materials can not be pinned to them so satisfactorily as to rope lines. They should be looked over carefully from time to time, since old wire lines may leave rust stains. Many housekeepers prefer to have a wire line for general use and to put up a rope line for special use on wash day. Boiling a new rope for a few minutes in soapy water softens it and lengthens its life. Clotheslines may be strung from posts or buildings or on a clothes drier, such as the revolving type with arms like the spokes of a wheel. A pulley arrangement between the house and some point in the yard makes it possible to hang clothes without leaving the house or porch. The many patent reels on the market are a convenience in stringing and storing lines, and similar devices can easily be made at home. When using these a loop may be made permanently on the free end of the line, and with permanent hooks on the clothes posts the line can be quickly unreeled, passed through the series of hooks, and the loop thrown over the last one. If a ratchet reel is used, the slack may be reeled up, and by dropping the pin or "dog" into place on the wheel the line is tightly stretched with very little labor.

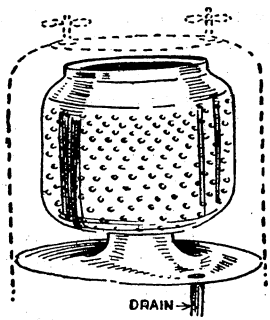


FIG. 3.—Centrifugal clothes drier, also called an "extractor"

Though the best place to dry clothes is out of doors in clean air and sunshine, in many city homes and during bad weather this is out of the question, and some provision must be made for indoor drying. A good kind of drier for the small home is a wooden frame equipped with rope and pulleys so that it can be pulled up to the ceiling. In larger establishments a specially heated room is sometimes provided. Gas or steam heated cabinets or centrifugal driers may be purchased (fig. 3). The centrifugal type consists of a metal perforated shell or basket which revolves very rapidly inside another container. The water is thus thrown out of the clothes to the outer edge of the basket, where it drops through the perforations and into the outer tub, from which it is drained off. In using such so-called extractors it is very important that the clothes be evenly distributed in the container in order that it may revolve smoothly. The heavier pieces should be placed in the bottom and all packed in snugly. There is much danger of overloading these machines, with excessive wear on the mechanism. A few washing machines are so built that the cylinder or an extra shell provided for the purpose can be revolved and utilized for such centrifugal drying. It is thus possible to wash, rinse, blue, and dry the clothes without removing them from the washer. This is very advantageous, especially where small washings are to be done. In case of large ones, however, time is often wasted because washing and rinsing can not be carried on at the same time.

The old-fashioned wooden clothespin is cheap and serviceable for general use, provided it is made of sound, smooth wood. Spring clothespins are usually of better quality, although the metal wire is likely to corrode and may break. A basket for clothespins with wire hooks can be pushed along the line and much time saved when hanging clothes; or one of the various kinds of clothespin aprons may be preferred. A clothes bag similarly equipped with hooks for the line can be used to hold the clothes as they are removed after drying. A small stool which keeps the hamper at convenient height also prevents tiresome stooping.

CURTAIN STRETCHERS

Curtain stretchers are a help in laundering curtains and other articles that can not be ironed and are best dried in shape. Those of substantial construction, with rustproof pins, adjustable clamps, and a scale of measure stamped on the frame, are best. It is possible to procure frames with strips of metallic bristles on the edges which admit of stretching without leaving the resulting scallops so commonly seen on laundered curtains. Curtain stretchers can also be made at home by winding strips of wood with heavy cloth, to which the curtain or other article may be pinned.

CLOTHES SPRINKLERS

A spray head attached to a cork that may be fitted into a medium-sized bottle makes an excellent clothes sprinkler. A round whisk broom is also good for this purpose. These devices give a finer spray, sprinkle more evenly, and do the work in less time than the hand method.

IRONING EQUIPMENT

IRONS AND IRONING MACHINES

Flatirons, sometimes termed "sadirons," may be self-heating or may be heated on a stove. The latter arrangement increases the labor of ironing, but it is often easier to procure different types of irons in this style. Irons weighing from 6 to 8 pounds are convenient for general use, although it is helpful to have a lighter one for thin fabrics and a sharp-pointed one for ruffles. If they are to be heated on the stove, at least three irons should be provided, even if they are all of the regulation shape and size. Detachable handles are a great help, but the locking device should be such that they may be firmly and securely fastened to the iron, so that the proper steady pressure may be applied in ironing and that the iron will not be dropped while being carried from the stove. Serious accidents have resulted from this defect.

Electric, gas, gasoline, and charcoal irons are available. Of these, irons heated by charcoal are perhaps the most difficult to regulate. A gas iron is somewhat clumsy to handle and should if possible have a flexible wire-covered tube. This may be fastened by a loop of string to a flexible spring suspended from the ceiling so as to keep it out of the way of the iron and prevent knotting while at the same

time allowing free play for the iron. Good connections are very necessary, and any leakage of gas should be corrected at once. The gasoline irons carry a small tank for the fuel and have a burner in the base. If properly made, these are safe, but the usual precautions observed in using such inflammable liquids should be carefully followed.

The electric iron is one of the best labor-saving devices now available. Its essential parts are shown in Figure 4. In purchasing, buy from a reputable company equipped to make the repairs needed from time to time, and see that the voltage marked on the iron corresponds to that furnished by the local power plant. The cord leading from the iron should be carefully watched and any break mended with insulating tape while the current is turned off. The same arrangement for holding the cord out of the way can be made as mentioned in connection with the tube of a gas iron.

Irons must be given adequate care if they are to last and do good work. After the ironing is completed stand the irons on end on a cool surface which will not burn. When cold put them away in a clean, dry place.

If they are not to be used again for some time, grease the polished surface with lard to prevent rusting. In case they have rusted, scour with scouring powder, rubbing the iron well afterwards with a flannel cloth. Deep rust may be removed by rubbing with fine sandpaper, then with fine emery cloth. Wash the irons well and dry thoroughly before putting away.

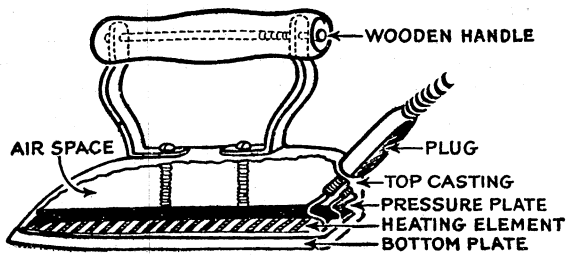


FIG. 4.—Inner construction of an electric iron

There are two outstanding types of heated ironing machines (fig. 5) now on the market. The one-roll machine has one revolving padded roll which supplies the pressure and a heated concave surface called a "shoe." The hot-roll machine usually has a heated steel roll which revolves and lies under and partially between several revolving padded rolls. Some of these are essentially drying rolls, whereas the others, being set closer to the steel roll, give more polish to the fabric. It is a little easier to detect scorching on a hot-roll machine, because the fabric is visible as it passes from one padded roll to another. However, many consider it easier to guide the clothing through a one-roll machine. Some machines have a thermostatic control which automatically keeps the temperature the same.

There is always a feed board from which the clothes enter the roll, a tray to catch the finished pieces, and a control device which releases the pressure of the roll against the heated surface. This control is sometimes in the feed board, which when pressed downward carries the roll back. Sometimes a foot lever is provided, and there are machines having levers at one end which are operated by

the hand. Other things being equal in the machines, it is best to have both hands free at all times for manipulating the clothing.

The roll may be operated by hand or by electric motor. If by hand, two persons are required, one to turn the roll and the other to guide the clothes through the machine. The heated surface or roll may be heated by gas, gasoline, or electricity. The latter is usually the most expensive to operate and often requires the same special wiring needed for an electric stove.

Ironers may be obtained in various sizes. The shorter ones are less expensive and require less space, but large flat pieces, such as

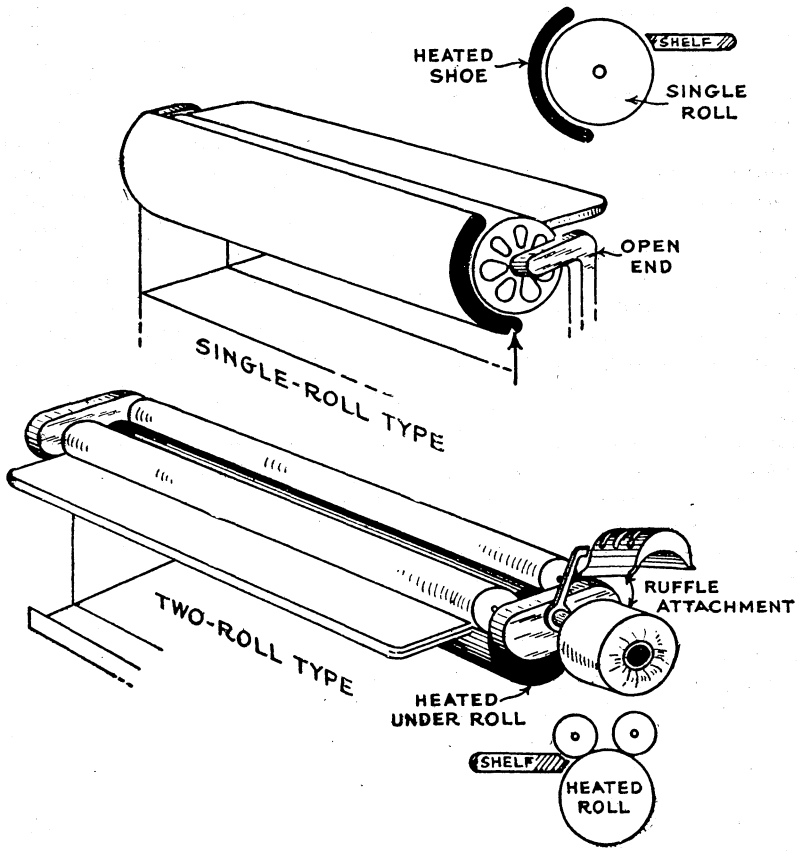


FIG. 5.—Types of ironing machines

tablecloths and sheets, must be folded so many more times when ironed on these that the extra labor and time required is an important consideration. When using any ironing machine the rolls should be kept in motion when in place against the heated shoe or roll. The manufacturer's directions for lubrication should be followed carefully.

Since the average-sized family does not have enough flat pieces in the laundry to make an ironer for them alone an economical investment, it is essential that it be used for as many different kinds of garments and household articles as possible. The open end pro-

vided on some machines or the small roll furnished on others makes this possible. However, much practice is needed before the average woman can iron very complicated garments satisfactorily, and it is wise to consider the ease of ironing when making or purchasing wash garments. By extra thought it is possible to select attractive garments which can be ironed easily on the machine.

A cold ironer, usually consisting of two rolls between which the article passes, may give much service. Such ironers are not intended for use on starched garments.

IRONING BOARDS AND TABLES

A firmly padded flat surface covered with clean white cloth is necessary for good results in ironing. If space permits, it is most

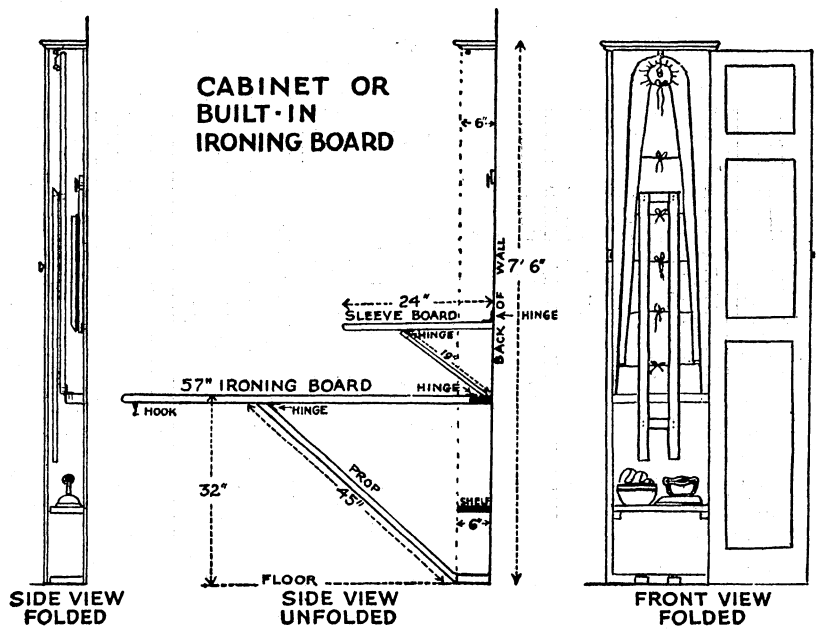


FIG. 6.—Detailed construction of a folding ironing board and its wall case

convenient to have a table for sheets and other flat pieces, a board for skirts and such garments, and a sleeve board. If one board must serve all purposes, it should be fairly long and wide, with one narrow end. Ironing boards with folding stands of many kinds may be bought, or an equally convenient arrangement may be made by hinging the board to the wall and supporting it with a prop. Many are now built as part of the house, with a narrow closet into which they can be folded. A typical one that can be constructed easily at home is shown in Figure 6. The shelf for the iron, sponging cloth, and other small equipment is very convenient.

For padding the ironing board or table the double-faced cotton flannel used for silence cloths on dining tables or an old blanket is good. Enough thickness of such material should be used to give

the surface spring without making it cushiony. Old sheets may be used for the cover, but new unbleached sheeting is better and not expensive, as the width of the sheeting will make the length of the cover. The cover may be hemmed and four pieces of tape firmly sewed to each side so that it can be easily put on and taken off. Ready-made covers laced together through eyelets are also convenient. A sheet of asbestos placed under the iron rest and paper or cloth for cleaning the iron should protect the muslin cover from scorching. Some boards have a piece of tin or other sheet metal about 8 inches wide tacked across the end on which the iron is to stand.

SUGGESTIVE LIST OF EQUIPMENT FOR A HOME LAUNDRY

Washing:
- Washtubs.
- Washboard.
- Washing machine.
- Wringer.
- Boiler and clothes stick.
- Soap dish.

Starching:
- Saucepan, or double boiler of enamel ware or aluminum.
- Strainer.
- Large pan, or pail of enameled ware or aluminum.
- Measuring cup and spoons.

Drying and sprinkling:
- Clothesline.
- Clothespins.
- Clothes props.
- Curtain stretchers.
- Sprinkler.

Ironing:
- Irons.
- Iron rest.
- Ironing board.
- Ironing table.
- Ironing machine.
- Sleeve board.
- Clothes rack.

Miscellaneous:
- Clothes basket.
- Pail or bucket, galvanized iron.
- Dipper.
- Scrubbing brush.

LAUNDRY SUPPLIES

WATER

If every home could have an abundance of perfectly pure water the home-laundry problem would be greatly simplified. However, as found in its natural state water always contains more or less dissolved and suspended material. This may consist of harmless gases, and dirt that the rain has carried down in its passage through the air, or mineral compounds of various kinds which the water has acquired as it passed through the soil or over its surface. The latter include a large number of substances, among the most important being compounds of sodium, calcium, magnesium, and iron.

Sodium compounds cause no trouble in the laundry unless they are present in such quantities as to render the water extremely alkaline or saline. Common salt is the most widely distributed of these, and though ordinary soap will not lather in very salty water, such a condition would be exceptional in most communities. Salt water is not termed "hard."

Compounds of calcium, magnesium, and iron react with soap, forming new materials which do not dissolve in water and appear as a sticky, unpleasant scum. Thus not only is the soap destroyed and rendered no longer available for making suds, but the scum settles on the clothes in specks or gives them a gray tinge. Such water is spoken of as "hard." In the case of iron compounds often brown stains also are left.

There are two kinds of hardness in water. Some of this mineral matter decomposes when the water is boiled for a short time and forms insoluble substances that appear as the white scale so commonly seen on the inner surface of teakettles. This water is said to be temporarily hard. All other hardness is described as permanent, although it can be removed by chemical means or by boiling away all the water and condensing the steam, thus leaving the mineral matter behind.

Hardness is expressed in degrees. One degree of hardness is equivalent to 1 grain of calcium carbonate in 1 U. S. gallon of water. In reality calcium carbonate itself is so insoluble in water that it could not cause much hardness, but it is taken as a standard for convenience. Commercial laundryowners usually consider water containing from zero to 3° of hardness as being "soft," that containing from 3° to 6° "moderately hard," 6° to 18° "hard," and more than 18° "very hard."

METHODS OF IMPROVING AVAILABLE WATER

As long as substances remain dissolved in water they are not likely to interfere with successful laundering. Water that is excessively alkaline, acid, or salty is an exception to this, because it would harm both clothes and hands. However, such conditions do not occur very often. They can be corrected best by distilling the water, but this is impractical in the home.

Substances not soluble in water may be deposited on the clothes as unsightly specks and spots. These may come from the sediment which is stirred up from the bottom of the tub or from the scum formed by the hardness of the water. Filtration and softening are remedies when such conditions exist.

Filtration.—Often objectionable materials can be easily removed by filtration, either with or without previous settling. Allowing the water to stand overnight is especially helpful in case it contains suspended iron compounds, or fastening a salt sack over the spout of the pump or faucet may solve the immediate problem. If the condition is serious filters of charcoal, sand, and such materials may be worth installing.

Softening.[6]—The removal of calcium and magnesium compounds which are dissolved in water is called "softening" or "breaking." This may be done by such mechanical means as boiling or distilling, and by the addition of chemicals. Distillation usually requires a rather large initial outlay and is not very practical for ordinary households. Boiling for a short time and then filtering off the insoluble compounds thus formed removes only temporary hardness, which may be a small part of the total.

As already stated, soap will remove calcium and magnesium compounds by forming a scum which can be strained off. However, this is a very wasteful and expensive method of softening water, and the scum is very difficult to remove effectively.

The use of washing soda is an inexpensive method. The soda reacts with the calcium salts and produces another calcium compound that falls out as a white solid. At the same time it also forms

[6] U. S. Dept. Agr., Farmers' Bul. 1448, Farmstead Water Supply.

insoluble compounds with other elements, including the magnesium. All these solid materials so formed should be strained off. For moderately hard water 1 pound of the soda should be completely dissolved in a quart of water and 2 tablespoons of this used for each gallon of water. All of the soda should be carefully dissolved, for if solid particles are left they may adhere to the clothes and make holes in them. Lime is sometimes used in addition to washing soda, the process being spoken of as the "lime-soda method." However, a slight excess of lime causes extra difficulty and this method is not very successful in household practice. Lye is cheaper than washing soda and is often substituted for it, but it is so excessively alkaline that it can not be safely used for this purpose.

Trisodium phosphate, borax, and ammonia solution can be used also for softening water. Ammonia is a gas which is bought dissolved in water. So-called household ammonia is often a very weak solution, and a high price is paid for the water and the bottle. It is sometimes more economical to buy concentrated ammonia solution of a druggist and dilute it according to need. This should be done carefully and out of doors, however, as concentrated ammonia solutions are unpleasant to handle.

The great difficulty in the use of any of these methods is determining the quantity of softening agent required. This can not be done accurately without knowing the degree of hardness of the water. The addition of too little washing soda or other softening agent for the amount of hardness does not remove it all, whereas the addition of too much renders the water more alkaline than may sometimes be advisable. Accurate determinations of hardness are made at all water laboratories, and from their results calculations of the correction needed can be made. However, the following method will give a general idea of the condition of the water:

Make a solution of a good white soap in denatured or wood alcohol. This should be as strong as it is possible to make it without a jelly forming upon standing. Fill a small glass bottle about half full of water. Fit it with a tight cork or stopper and mark the level of the surface of the water by scratching the glass lightly with a file or by using a label. Add the soap solution drop by drop (counting the drops) until, when the bottle is shaken violently and placed upon its side, the suds forms an unbroken layer over the top of the water and remains that way for 1 minute by the clock. Repeat until the exact number of drops necessary to form the suds has been determined, being careful to use the same quantity of water each time. Compare the quantity of soap needed with that required for producing similar suds in fresh rain water. The difference is due to the hardness of the water. Vary the quantity of softening agent used each week per tub of water and repeat the above test. When the softened water requires no more soap than the rain water, record the quantity of softening agent placed in each tub of water and thereafter add that same amount.

Certain clay-like substances known as zeolites are being used very effectively in water softening at present. These are in reality complex sodium compounds. When hard water is passed through a thick layer of such material a chemical change takes place that

causes the calcium and magnesium to remain in the zeolite while sodium compounds pass into the water. When its power has been exhausted the zeolite may be quickly revived by passing a strong solution of common salt through it. The exchange of elements is thereby reversed, the calcium and magnesium compounds being thrown into the water again. The water containing these undesirable substances is discarded and the system again is ready to soften hard water. Such systems are being used extensively in commercial laundries and in private homes where the sources of water are such that the household supply can be led through tanks of zeolite before being distributed through the house and where the water is so hard that the expense of installing such a system is justified. There are also on the market small devices filled with zeolites which can be attached to individual faucets. They act in the same manner and must be revived periodically with salt solution.

SOAPS AND OTHER CLEANSING AGENTS

Soaps are usually made by heating or thoroughly emulsifying fats or oils with certain quantities of lye. Glycerin is also formed in the process and may be removed or left in the soap. On account of its value for other purposes it is usually not found in laundry and other less expensive soaps, but is taken out along with natural impurities by dissolving the mixture in water and "salting out." For this, large quantities of common salt are added, which cause the soap to fall out of the solution while the bulk of the impurities, the glycerin, and the salt remain dissolved. It is impracticable, if not impossible, to remove all of these various materials, and therefore soaps always contain at least traces of impurities and often more or less salt.

The value of a soap depends upon the character and quality of the fat used in its manufacture, the way the ingredients are mixed and handled, the foreign materials added, and upon so regulating the amount of fat and lye that there is an excess of neither. Too large a proportion of fat produces a soap that feels greasy and leaves traces of fat on the clothes. This is rarely true of commercial brands, but sometimes is of homemade soaps. An excess of lye produces what is called "a strong soap," and one that is likely to weaken cloth and injure the hands. When this is not the case the soap is called "neutral." The large variety of soaps on the market differ in all these ways, but chiefly in the materials added to increase their value as cleansers, to act as water softeners, to cheapen them, or give them special properties. The more common of these are as follows:

WATER IN SOAP

Soap will absorb and hold large quantities of water, the amount depending somewhat on the kind of fat used in its manufacture. A moist soap dissolves easier than a dry one, but this power to hold water can be used by unscrupulous manufacturers to increase the weight of the soap with a cheap substitute. No one wishes to pay for soap and receive chiefly water. If a bar dissolves with great rapidity when being used, it very likely contains an excess of water.

OTHER DETERGENTS

Rosin is commonly found in laundry soaps. It can be used in place of part of the fat, because it will react with lye and form compounds which will lather and otherwise resemble soap. It therefore has cleansing power, but is not so valuable as good soap, and should not be present in quantities exceeding one-third of the fat. Larger quantities produce a disagreeable odor, give a sticky feeling, and are likely to color the clothes yellow. Rosin makes soaps softer, and it can therefore be used best in connection with tallow and other hard fats. Since it is cheaper than soap, it may be considered an adulterant unless sold at a correspondingly lower price. Almost all yellow laundry soaps contain rosin, although such color may be due to the grade of tallow or other fat used.

Sodium silicate (water glass) is another common addition. Most authorities agree that it increases the detergent or cleansing value of the soap; but it, too, is cheaper, and should not be used in a way which will defraud the consumer. It also has value as a water softener.

Naphtha and other similar materials are sometimes added to assist in dissolving grease. They are useful in cold or lukewarm water, but evaporate too easily to be very helpful in connection with hot water.

WATER SOFTENERS

Sodium borate, sodium carbonate (washing soda), and trisodium phosphate are sometimes added to soaps to increase their detergent value and to act as water softeners. However, when purchased in the soap, the price is usually greater than their value. It is cheaper to buy them separately. They are also objectionable in soap because they make it more alkaline, and may render it unfit for washing silks and woolens. Then, too, they increase the ability of the soap to hold water without appearing wet, and therefore make it possible to produce a soap containing an excessive amount of water.

INERT SUBSTANCES

Common salt and other inert and sometimes insoluble materials are often added to increase the weight of the bar or to give scouring properties. Salt should not be present in quantities greater than 2 to 3 per cent. Soap must go into solution if it is to make suds and be of value in the laundry. Materials that will not dissolve, such as pumice and sand, are only valuable as scouring agents, and should not be present in laundry soaps.

SELECTING LAUNDRY SOAP

A good laundry soap should be free from excessive water and uncombined fat, should have a minimum of uncombined alkali, and should not contain an excess of rosin, salt, or insoluble material. Methods of judging these points are given in the preceding paragraphs.

The kind of fabrics to be washed should be considered in selecting the soap. The best soap should be chosen for use on silks and

woolens, since they are the most sensitive to alkalis. A mild soap should also be used on cotton materials that show a tendency to fade and on all delicate fabrics. On the other hand, it is uneconomical to use an expensive soap on ordinary cotton fabrics where a medium-priced soap would be satisfactory, or on very heavy, dirty materials which would be cleaned easier with a stronger soap. Many women ignore this and are either wasteful of good soaps or spoil their more delicate garments with poor ones.

Although most soap is cut in bars of convenient shape and size, chipped and flaked varieties are much used, both for special fabrics and in ordinary laundering, particularly when a washing machine is used. Their outstanding value lies in the ease with which they go in solution, the flaked being the better in this respect. As in the case of other laundry soaps, the chipped and flaked kinds should not, and most of them do not, contain excessive water or insoluble matter. It is also essential, since they are generally used with delicate fabrics, that they should not contain rosin and should be free from excessive alkali.

Cake soap can be rubbed into chips on a household grater, or, if very dry, put through a food chopper. This is a good way to use accumulated scraps.

WASHING POWDERS

From the standpoint of value received, washing powders are about the most expensive of the laundry supplies. They usually contain powdered soap, washing soda, trisodium phosphate, borax, or inert scouring materials alone or in combination. Thus they are likely to be composed of both detergents and softening agents. Most washing powders contain an excessive amount of free alkali and should be used judiciously. In practically every case it is preferable to buy washing soda (sal soda), borax, or trisodium phosphate alone and not as part of a mixture of unknown composition. In that way there is no doubt about the strength being used and the cost is less.

SOAP SUBSTITUTES

Soap bark is perhaps the most valuable soap substitute. It is on the market in the form of chips, powder, or long, flat pieces. When extracted with hot water a solution containing a lather-forming material called a saponin is obtained. This has detergent power, and, since it is very mild in its action, is suitable for delicate fabrics.

BLUINGS

Bluing is used in laundering for the purpose of covering or neutralizing the yellowish tint of white fabrics. It does not remove the cause of the yellow tint, but merely produces a gray to which the eye is less sensitive and which appears white. In the case of soluble blues one of violet cast is required to give the desired effect.

There are two kinds of household bluing available, the soluble and the insoluble. The insoluble is found as balls, cubes, or powders. Some of these consist of starch tinted with blue dye, made into a paste with gum arabic, dried and cut into blocks, but most of them are ultramarine. The method of making this coloring matter, the

composition, and even the shade vary. It is fast to light and alkalis, but is readily acted upon by weak acid solutions; aging does not affect it; and it gives a pleasing tint to the clothes. Since it does not dissolve in water but colors it by means of tiny particles held in suspension, there is sometimes difficulty in keeping it well mixed so that the clothes are blued evenly and without streaks. As with all insoluble bluings, the particles should be as fine and light as possible in order to lessen this difficulty. Indigo, formerly used a great deal as a bluing, was of this type, but it is not used very commonly now.

Soluble blues are usually either soluble Prussian blue or any one of a great number of blue dyes. Prussian blue is inexpensive and gives a fairly permanent tint. Its chief disadvantage is that it is an iron compound, which is affected by alkalis. Therefore, when it is used on clothes from which alkaline soaps and washing powders have not been well rinsed, a yellow color may be produced in either of two ways. The bluing may be destroyed and the original yellow again revealed, or yellow iron compounds may be deposited on the fabric, leaving stains that are similar to those from rust and must be so treated. Such a bluing may be identified by adding a small quantity of concentrated ammonia solution or strong washing soda to a small portion and noting whether a reddish-brown substance forms.

There is an enormous number of blue dyes on the market which may be used for bluing. They are often called "aniline blues," just as dyes are often spoken of as "aniline dyes." These usually have greater relative coloring power than other kinds of bluing, are fairly permanent, and give many different shades. The dye used should not be too fast to washing, as accumulated bluing may give the clothes an undesirable gray tint. Some of these dyes are sensitive to acid, and if acid bleaches are to be used a "nonsour" type should be selected.

In general, a bluing should give a bright, clear color of a faint violet-blue shade, its strength should correspond to its cost, and it should be either soluble in water or composed of such light particles that it will not settle out easily.

STARCHES AND OTHER FINISHES

Starching is an effort to replace the original finish which the textile manufacturer gave to the fabric, and which, except in the case of especially prepared permanent finishes, is removed by laundering. This finish not only stiffens the fabric, but leaves it smooth and pliable and gives it a certain "feel" which makes it attractive. Therefore starching, as a laundry practice, should if possible produce all these results and not just stiffen the garment. In fact, the emphasis upon stiffness has caused many laundresses to use too much starch, giving the garment a "laundered" appearance which defeats the purpose of the process. The ideal starch should be of such a nature that it penetrates well into the spaces between the fibers of the cloth, imparts a gloss when ironed, and takes up enough moisture to make the fabric soft and pliable. Starching also helps to keep the garment clean for a longer time by covering and holding down the tiny surface hairs that catch the dust and dirt.

Laundry starch is the product of cereals, such as corn, wheat, and rice, of the potato, cassava root (tapioca), and the stems of the sago

palm. In general, each kind forms a very different and characteristic paste with boiling water. However, pastes made from the same kind of starch obtained at different times or from several sources may vary. This variation may be due to impurities, differences in manufacture, and in the maturity of the plant. Also, the pastes of some starches require longer cooking than others to reach their maximum thickness. The paste of corn starch gradually becomes thicker upon continued boiling, whereas that of potato starch reaches its maximum thickness in about five minutes and becomes thinner with longer cooking.

The stiffness of the paste, however, is not an indication of the stiffness that a starch will give to a fabric. For example, corn starch, which forms a thinner paste than potato starch, gives a much stiffer finish; on the other hand, wheat starch, which forms a very thin paste, gives an even stiffer finish than starch from either corn or potatoes.

Corn starch is by far the most important and plentiful starch in this country and can be obtained in several grades of purity. However, when special results are desired wheat, rice, and potato starches are used, either alone or in various combinations. Wheat starch tends to give a stiffer, more harsh, and somewhat fuller or thicker finish to the fabric than corn starch. Potato starch gives a very smooth, soft finish. Rice starch also gives a soft but somewhat fuller (thicker) finish than potato starch. Potato, sago, and cassava starches form transparent pastes, and for this reason they have been suggested for use on dyed fabrics where other starches might dull the color.

Potatoes and rice cooked at home may furnish starch for laundering purposes. The water remaining after cooking one-half cup of rice in 2 quarts of water can be diluted to 1 quart by pouring boiling water over the rice, and contains sufficient starch to stiffen several small garments slightly. This method of cooking serves another purpose; it not only frees more of the starch, but leaves a more individual and flaky grain of rice for food than is obtained in the double-boiler method of cooking. Likewise the water from boiled potatoes may be used. In fact, it has been found that frozen and even some types of decayed potatoes may be used advantageously for the production of starch.

However, since these starches are all more expensive and difficult to obtain than the corn starch, it is impractical to consider their use for the regular family wash. Moreover, the ordinary corn starch gives almost any of the desired effects when one or more of such softeners as paraffin, lard, beeswax, spermaceti, Japan wax, soap, tallow, and glycerin, and other foreign substances such as borax, alum, gelatin, and glue are mixed with it in the correct proportions.

All natural starches are insoluble in cold water, but when mixed with water and heated the starch grains swell, finally burst, and partially dissolve. The so-called soluble starches are usually formed by treating ordinary starch with acid or alkali. The extent to which they dissolve depends largely upon the length of time of treatment and the quantity of acid or alkali used. Many of the starches sold in packages under various trade names are corn starch which has received modified treatment to make it partially soluble and thin boiling. They generally also contain one or more of the foreign substances which are claimed to add to the gloss, pliability, softness,

or whiteness of the starched fabric. Thus the various brands usually differ somewhat.

Since these partially soluble or thin-boiling starches do not make the thick paste typical of common raw starch, many authorities claim that they have greater penetrating qualities. Thus they are less likely to rub and scale off during ironing, and give a less "starchy" appearance to the fabric. There seems still to be a question as to whether they possess as great stiffening power as the untreated starch. However, no matter what starch or starch preparation is used, if the starching is done while the paste is very hot the penetration will be much better and the starch will be deposited more evenly upon the fabric.

Directions for making and applying starch paste are given on page 28.

Often it is desirable to use materials other than starch to produce special finishes on certain fabrics. A very dilute solution of gelatin or glue is excellent as a dressing for silk and for some of the finer cotton materials, such as organdies, voiles, and bastistes. Dilute solutions of gum arabic and gum tragacanth may also be used. An almost new appearance can be obtained on wool by the use of these substances. They are transparent, which makes them especially desirable for finishing colored fabrics. Directions for their application are given on page 29.

METHOD OF LAUNDERING

In many households Tuesday is replacing Monday as wash day. This allows time for the extra duties that have accumulated during Sunday, and for mending, removing stains, and otherwise preparing the clothes for laundering. It is often preferable to set aside a special day for curtains, blankets, and such pieces requiring particular care, because when included with the regular wash it is difficult to give them proper attention.

PREPARING THE CLOTHES FOR LAUNDERING

Mend all torn places, except in the feet of hosiery, and remove all serious stains[7] before washing. Many small tears are made larger, and many otherwise removable stains are set by laundering. Turn all garments inside out. Place the cotton and linen together and the silk and wool in different piles. Separate the white from the colored in each pile, and also separate the very dirty from the slightly soiled. Notice whether artificial silk, now termed "rayon" by the trade, is present in any of the fabrics or trimmings. Artificial silk is often much weakened by water and must be laundered as a very delicate material. Sort the clothes in a clean place. The practice of throwing soiled clothes on a dirty floor increases the work of laundering. A convenient division of clothes and order of washing is as follows, but when the washing is small some of the groups must of course be combined:

[7] U. S. Dept. Agr., Farmers' Bul. 861, Removal of Stains from Clothing and Other Textiles.

Cotton and linen:
- Table linen, doilies, centerpieces.
- Bed linen, dresser scarfs, slightly soiled towels.
- Thin white clothing.
- Heavy white clothing.
- Handkerchiefs.
- Towels.
- Slightly soiled light-colored garments.
- Slightly soiled dark-colored garments.
- Very dirty garments.

Hosiery.
Silks.
Woolens.
Curtains, blankets, comforters, and special miscellaneous.

WHITE COTTONS AND LINENS

Since white cottons and linens make up the bulk of the family laundry, the general methods of washing and ironing are given for them and directions for handling colored cottons and linens, woolens, silks, and other materials requiring special care are given separately.

SOAKING

Soaking clothes overnight, or even for a shorter time, loosens dirt, saves time, and lessens wear. Cover the clothes with soft lukewarm soapy water, being careful to use separate containers for very dirty and only slightly soiled ones. Another method is to wet, soap, roll, and place them in a small quantity of water. This takes more time but is more effective.

FIRST SUDS

Remove the clothes from the water in which they have been soaked. Wash them either by hand or by machine in plenty of soapsuds as hot as the hand can bear. When the water becomes dirty drain it off and replace with clean, hot suds. Soap solution or soap jelly is more convenient than a soap bar, as it makes suds more quickly and cleans more evenly. Soap flakes or chips also dissolve rapidly.

Soap solution may be made by dissolving a cake of soap in 3 quarts of hot water. One cake cut up and placed in 1 quart of water and heated gently until dissolved makes a good soap jelly.

Rubbing on a washboard should be gentle. The aim is to force the water through the fabric; therefore soiled places should not be rubbed until they are dry, but should be dipped after each rub if possible. Use the fleshy part of the hand. A small brush can be used to good advantage, even on rather delicate materials.

If a machine is used, follow the printed directions furnished with it, especially as to the quantity of water to be used and the weight of clothes to be washed in a load. Overloading is a frequent cause of dissatisfaction. Place delicate fabrics and small articles in net or thin muslin bags to protect them and facilitate handling.

After washing, wring the clothes as dry as possible. In wringing, garments should be lifted and guided through the rolls; otherwise buttons and buckles are likely to injure the rubber and materially shorten the life of the wringer. Folding the buttons inside the fabric is also helpful.

SECOND SUDS

Washing through a second suds is advisable, but not always necessary.

BOILING

The clothes may be boiled if it is desired to disinfect them thoroughly, but this is not necessary. Under good conditions of washing, rinsing, and drying boiling may be omitted.

If clothes are to be boiled, wring them from the wash water, place in fresh, hot, soapy water, and boil them for 5 to 10 minutes. Longer boiling has a tendency to yellow the fabrics. As the clothes are lifted from the boiler allow them to drain as much as possible.

If the clothes are very dirty or yellowed, kerosene or turpentine (inflammable) may be added in the proportion of 1 to 6 tablespoons for a boilerful of water. The clothes must then be thoroughly rinsed in order to remove the odor, which is very objectionable to many persons. This is a serious difficulty if hard water is used. Turpentine is also sometimes injurious to the hands. An easier but more expensive method of whitening clothes is to add the juice of one or two lemons to a boilerful.

RINSING

After the clothes have been washed and boiled, rinse them thoroughly in plenty of hot, clear, soft water. Cold water hardens the soap and makes it more difficult to remove. Do not place bluing in the rinse water, as it is essential that all soap and washing powders be removed from the cloth before the bluing is added. Thorough rinsing is of great importance. Soap and washing powders weaken and yellow fabrics when allowed to remain on them indefinitely. Wring the clothes from the rinse water as before.

BLEACHING

Clothes that are very discolored from long storage or poor washing may require bleaching. Often merely moistening and spreading them on the grass in the sun is sufficient. If this is not effective, chemicals may be used with proper precautions. In all cases the bleaching chemicals should be carefully labeled and stored where not accessible to children. The suggestions given below are for white materials only. Avoid using chemical bleaching agents on dyed fabrics. All bleaching agents must be thoroughly rinsed from the fabrics after the desired results are obtained.

One of the most common bleaches for cotton and linen, generally called Javelle water, is prepared by dissolving 1 pound of washing soda in 1 quart of boiling water, cooling, and adding one-half pound of bleaching powder (chloride of lime) dissolved in 2 quarts of water. An earthenware jar or granite container is best. Allow the mixture to settle, preferably overnight, and dip off the top liquor or strain through several thicknesses of cheesecloth so that the solution for bleaching contains no solid particles. Store in tightly closed bottles. When needed, place one-half pint of this mixture in 1 gallon or more of cold or lukewarm water, and immerse the clothes.

Allow them to remain until the desired amount of bleaching has been accomplished, although longer than half an hour is likely to be harmful to the fabric. Boiling in Javelle water may also weaken the material.

Rinse thoroughly in water, and if possible pass into an "antichlor" bath containing one-half ounce of sodium thiosulphate and one-fourth ounce of 36 per cent acetic acid per gallon. Sodium thiosulphate ("hypo") is used in many homes where amateur photography is being done, or can be obtained at the drug store.

In using Javelle water care must be taken with fabrics already weakened, such as curtains, and no garment containing silk or wool, either as part of the fabric or as stitching or trimming, should be so bleached. Silk and wool dissolve in this solution. No fabric containing a colored design should be treated in this way, as many dyes are not fast to chlorine bleaches.

Hydrogen peroxide is an effective bleach, not harmful to most fabrics. It can be used in various concentrations, depending upon the amount of bleaching required. One pint to a gallon of water is an average quantity. A teaspoon of concentrated ammonia solution or of sodium perborate added to each gallon of the solution makes the action stronger.

Oxalic acid (poison) is a good general bleach, but is used chiefly when ink or rust stains are very widely scattered over the garment. One ounce per gallon of water is a good concentration. Use the solution cold or heated to a temperature that can be comfortably borne by the hand. Place the fabrics in it and leave until bleached. Ten minutes should be sufficient, unless the stains are very persistent. Rinse the fabrics very thoroughly, and to neutralize any remaining acid pass them through a bath containing one-half ounce of borax per gallon or through a fairly strong solution of ammonia. Continue the rinsing with clear water until there is no danger of any of the acid being left in the fabric.

Potassium permanganate in the proportion of one-eighth ounce to a quart of water is a safe bleach for all fibers if care is taken in rinsing. Wet the garment first in clear water and immerse in the permanganate for five minutes. The brown color left on the fabric is removed by immersing in hydrogen peroxide made slightly acid with acetic, oxalic, or tartaric acid, or in oxalic acid solution alone. Rinse very thoroughly in water. If oxalic acid is used, a rinse in ammonia solution will assist in removing any traces of the acid.

BLUING

A fabric that has been properly manufactured and always properly laundered does not need bluing. There are few of these in the average household, but too much rather than too little bluing is usually added. The various kinds of bluings are discussed on page 21, and the following precautions should be observed in using them:

Dissolve soluble powder bluing in a small quantity of water, and add it drop by drop to the tubful of clear water. Be sure that there are no undissolved particles. Put ball or block bluing into a bag of canton flannel or similar material and move it through the tub of cold water until the desired color is produced. Make

insoluble powder bluing into a paste in a small vessel, and stir well while adding to the water.

Make bluing water just before it is to be used. If allowed to stand for a long time it is likely to streak the clothes. Test the shade by dipping in a small garment and holding it to the light, or by holding a little of the water in the hollow of the hand. Heavy fabrics require more bluing than thin ones. Stir all bluing water occasionally during use, especially that made with insoluble blues. Blue only a few pieces together, and do not let them soak in the bluing water. The ideal method is to dip them in and out one at a time. Never draw off the bluing water, leaving the clothes in the washer or tub; this may streak them. Clothes that have been overblued may be whitened by pouring boiling water over them or by boiling for a few moments. After bleaching wring the clothes as before.

STARCHING AND SPECIAL FINISHING

The amount of starch needed for garments depends on the kind and weight of fabric, the manner in which they are to be used, the stiffness desired, and whether they are wrung by machine or hand. If put through a wringer after starching, thicker paste is necessary to produce the desired stiffness than if wrung by hand. The wringer removes the excess starch more evenly and leaves the garment drier, but many pieces requiring starch may have trimmings that make it inadvisable to wring them by machine.

Because of the great variety of materials to be starched and the different methods used, an exact recipe can not be given for making starch suitable for all purposes. The following is a good general one, and this paste can be thinned with hot water until it gives the stiffness desired for the fabric:

STARCH PASTE

Two to six tablespoons corn starch.
One-third cup cold water.
One-half teaspoon lard, paraffin, or any white wax.
One quart of boiling water.

Mix the starch and part of the cold water, and stir into the boiling water in a double boiler. Use the remaining water to rinse out the adhering starch. Add the lard or white wax, and cook for 15 to 20 minutes. Strain if lumps have formed. However, if care is taken there should be no lumps.

Suggestions for the use of other starches, such as wheat, rice, and potato, for special effects are given on page 23.

Starch garments wrong side out, and leave them so until they are sprinkled. For white clothes use the starch as hot as the hands can stand. Hot starch penetrates better and more evenly, and does not leave glazed spots when ironed. Keep the bulk of the starch hot and use only a part of it at a time, replacing it frequently when it becomes cold and thin. More satisfactory results are obtained by having two pans of starch, besides the reserve supply. Dilute one with enough water to make a good paste for the thinner materials, and keep the other sufficiently thick for the heavier.

Starch first those garments which are to be stiffest. Garments wrung very dry before starching will be stiffer than wetter ones.

Directions for starching colored fabrics are given on page 32. Prepared starches are sold for use in cold starching. The directions given on the packages of these should be carefully followed.

Special finishes are often used on certain fabrics, such as voiles, organdies, batistes, and many silks, to restore their crisp, new appearance. Dilute solutions of gelatin, gum arabic, and gum tragacanth are all good for this purpose. Avoid using too much of any one of them, since an excess will cause a sticky feeling. The following table gives the approximate quantity of each of these substances to be used with a pint of water in making the stock solution, and the quantity of hot water with which to dilute it at the time of use. A little borax added to the solution when first made helps to preserve it.

Special finishes for delicate fabrics

Material	Quantity used	Water	Dilution
	Ounce	*Pint*	
Gelatin	1	1	1 part solution to 8 to 15 parts hot water.
Gum arabic	1	1	1 part solution to 5 to 10 parts hot water.
Gum tragacanth	½	1	1 part solution to 8 to 12 parts hot water.

Add the cold water to the gelatin or gum and heat until it has dissolved. Dilute with hot water, the quantity depending on the kind of material and the stiffness desired.

Directions for dressing wool are given on page 33, and for finishing silk on page 34.

HANGING AND DRYING

Dry the clothes outdoors if possible. Sunlight is an excellent bleach.

If the clothesline has been left out, wipe it carefully with a damp cloth before using. A cloth moistened with kerosene is excellent to remove soot and dirt, but the remaining traces of the oil should be removed with a dry cloth to prevent stains. Clothespins must be perfectly clean.

Hang garments on the straight of the goods and by their bands where possible. Sheets and other large pieces should be placed from a fourth to a half over the line and fastened securely in three or four places. Group similar garments together. Removing the clothes from the line in a systematic manner and folding the straight pieces before placing them in the basket will save time later, especially if some are to be put away unironed.

SPRINKLING

Sprinkle the clothes evenly and thoroughly with warm water. Pull the garments into shape, fold, and roll. Cover snugly with a clean cloth and allow to stand for at least half an hour, so that the dampness will become more evenly distributed. Clothes may be allowed to stand overnight if there is no danger of mildewing.

IRONING

Use a clean, hot iron as heavy as can be handled comfortably. To keep the iron clean, rub occasionally with wax or paraffin. An iron is hot enough to use when it "spats" when touched with a moistened finger. Too cool an iron may leave a rust stain. With starched clothes the iron must be hot enough to glaze the starch; otherwise it will stick and discolor the fabric.

Iron with the thread of the goods and until the garment is dry. Otherwise it will have a puckered appearance. Iron first those parts of the garment that will hang off the board while the rest is being ironed. For example, when ironing a blouse or a man's shirt iron the cuffs and sleeves first, then the collar, and then, beginning with one side of the back or the front (depending on where the garment fastens), continue around to the other side. After ironing a garment look it over carefully and press again where needed. Gloss on hems, tucks, and seams can be removed by moistening a piece of cheesecloth with clear water, wringing it dry, and wiping quickly over the glazed surface. Scorch is usually removed by moistening the fabric and exposing it to strong sunlight, although bleaches are sometimes necessary.

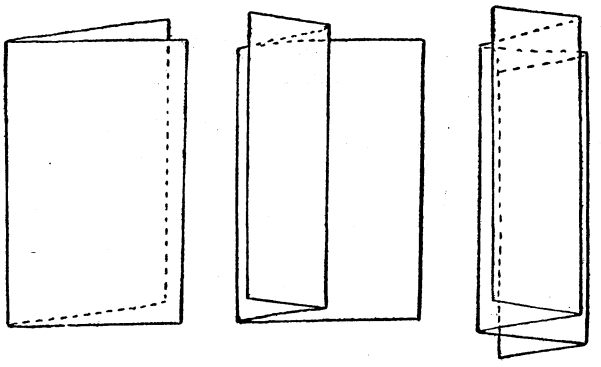


FIG. 7.—Method of folding tablecloths and other flat pieces

Iron on the right side, except when it is desired especially to bring out the pattern. Embroidery appears best when ironed on the wrong side on a thick, soft pad. Flat laces are sewed or pinned in place on a cloth or pad before washing, and do not require ironing.

Directions for operating an ironing machine can always be obtained from the dealer when it is purchased.

AIRING AND FOLDING

All articles should be folded as little as possible, but this depends, of course, upon the space available for storing them. In general, fold pieces lengthwise in the direction of the warp and then very lightly crosswise until a convenient size is reached.

A method of folding tablecloths and sheets is shown in Figure 7. They should then be hung on the clothes rack until thoroughly dry before being folded crosswise. Do not iron in the crosswise folds. If arrangements can be made for storage, one lengthwise fold can be made and the tablecloth then rolled on a short pole or roll of paper. Centerpieces and tray cloths should always be rolled.

Dinner napkins are folded into squares. Two folds each way are customary. These are so arranged that when the napkin is placed

on the table at the left of the plate with its edge and selvage parallel to the silver and the table edge, any monogram or embroidered figure is on the outside fold. Luncheon napkins also may be folded square, following the same method, but with only one fold each way. An additional fold making an oblong is sometimes used, the monogram being placed as in the case of the dinner napkin. Luncheon napkins are sometimes folded in triangular and other shapes in order to conserve space on the table or give different effects.

Towels and pillowcases are folded lengthwise into thirds, the center third being left on the outside. The one crosswise fold is not ironed in. Handkerchiefs are often folded into a very small square. A better method is to make one fold each way in a woman's handkerchief and two folds each way in a man's handkerchief. In the woman's one more fold gives an oblong shape, which some people prefer. Allow all straight pieces to dry thoroughly before piling them or putting them away.

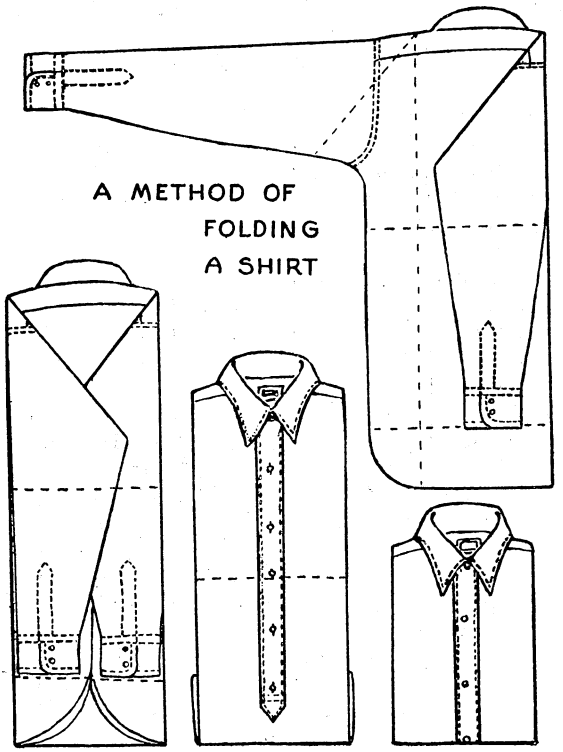


FIG. 8.—A simple method of folding a shirt, which can be applied to many other garments

Garments should be dried well on hangers or the clothes rack before being folded. Two methods of folding shirts are shown in Figures 8 and 9, and can be adapted to most other garments. The latter method, however, adapts itself better to shirts and is more commonly used by manufacturers. If space is available, the clotheshorse may be moved into an unused room and the frequently used garments left upon it.

COLORED COTTONS AND LINENS

The general method of laundering (pp. 24 to 31) should be modified as follows for colored cottons and linens:

Do not soak colored clothes unless the colors are known to be fast. There are no effective home methods of "setting" colors; those ordinarily suggested are useless.

Handle as rapidly as possible. Use neutral soap and no strongly alkaline washing powders, unless the garments are very dirty. If the fabrics are particularly delicate, use soap-bark extract instead of soap. This is prepared by placing soap-bark chips in four times as much cold water by measure, bringing to the boil, and boiling for about 30 minutes. Add water from time to time to replace what boils away, strain the resulting yellow liquid, and store in closed bottles. A little borax will aid in preserving it. If a mold forms, strain the extract again and rebottle. Do not use alkaline washing compounds with it.

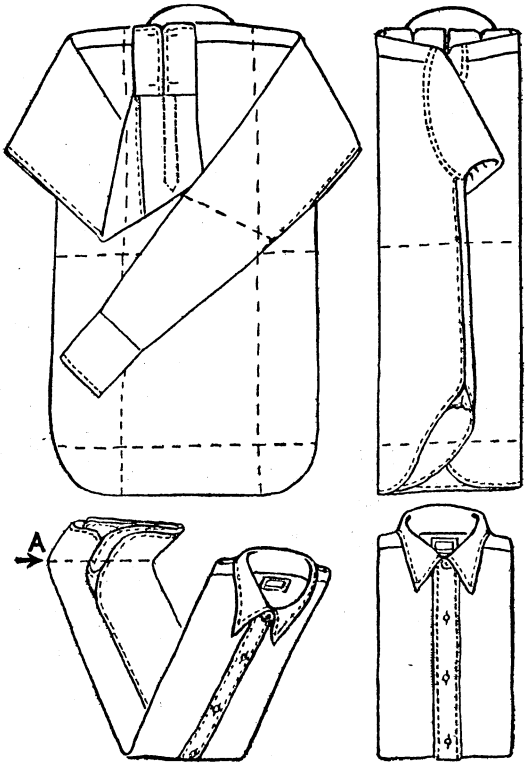


FIG. 9.—Envelope method of folding a shirt. The part A slips between the upturned cuffs and the shirt

White starch shows very prominently when used on dark fabrics. It may be tinted with tea or coffee for browns and with bluing for blues, or specially tinted products may be purchased.

Starch containing some gelatin is effective for light-colored linen and cotton fabrics. Glue is sometimes used for dark materials. Do not use very bad-smelling glue, however, as the odor is difficult to remove from fabrics. Soak 1 ounce of the glue in a cup of warm water and boil in a double boiler until it is dissolved. If necessary add warm water in order to keep the quantity to 1 cup. Dilute according to the stiffness desired, cool the solution somewhat, and dip the garment as into ordinary starch, wiping off the excess glue with a piece of black cloth. The remaining glue can be used again. After sprinkling, roll the garment in a black cloth and iron on a board covered with black cloth. If the glue accumulates on the surface of the iron, it can be removed by dilute acetic acid or vinegar.

Irish moss solution made by boiling one-half ounce of the moss in 2 cups of water, straining, and adding one-eighth cup of stock gelatin solution (p. 29) makes a good stiffening agent for heavy cotton garments and linen suitings.

Dry all colored garments in the shade and be sure that they are wrong side out. Take in as soon as dry.

WOOLENS

Moist wool is sensitive to rubbing and heat, and becomes hard, yellow, and shrunken unless special precautions are taken. Weak solutions of alkalis increase this tendency, strong ones tender and often completely dissolve the fabric. Shrinkage is increased by intense heat and also by marked changes in temperature, making it imperative that all water used be lukewarm. Woolens are often washed correctly, but rinsed in cold water, which causes a sudden contraction likely to be permanent.

Use the general laundry method, with the following exceptions:

Measure knitted garments and any others likely to shrink, so that they may be stretched later to their original size.

Soak woolens for a very short time, if at all.

Avoid water which has been softened with large quantities of alkaline compounds. Use only neutral soaps and no strong washing powders. Borax and ammonia solutions are the safest assisting agents. Use soap in the form of a solution or jelly, and do not rub soap directly on the fabric. Have an abundance of lukewarm (about 110° F.) suds. Use more water in proportion to bulk for wool than for any other material.

Squeeze and work in the suds without rubbing. Press out the excess water and wash in a second suds of the same temperature. Hand washing is less likely than machine washing to shrink woolens and make them lose their softness.

Never boil wool materials.

Squeeze them from the last suds and rinse free from soap in several changes of lukewarm water as near the temperature of the suds as possible.

Wring through a loosely set wringer, being careful not to stretch the garment.

A dressing is sometimes needed in light-weight wool fabrics and in wool-cotton union materials. A dilute glue solution, or such a solution added to clear boiled starch, may be used. If the fabric is dark it is better to omit the starch. Have the solution lukewarm, and dry the fabric at a moderate temperature or the glue will show.

All wool materials should be dried in a warm place, but not near a fire or in the direct sunlight. Never allow them to freeze. Hang knitted underwear from the shoulders, shaping the garments occasionally and squeezing the water from the bottom. Spread sweaters and similar knitted garments back down with sleeves outstretched on several thicknesses of clean, soft material laid flat. Measure and shape according to the dimensions taken before the garment was wet, and pin in place if necessary. Turn occasionally after it is almost dry. The excess of water may be removed previously by placing it in a sheet suspended in cradle form, but the pad is more satisfactory. Infants' garments may be dried on forms (fig. 10.)

Blankets may be placed over a line with a half or fourth on one side. The ends should be squeezed occasionally to remove the excess water. When dry, raise the nap by brushing well with a clean, stiff whisk broom. The warmth of a blanket depends very largely

upon the amount of nap. Hand cards, such as are used for combing wool, are even better for this purpose.

Press wool garments while still damp with a medium hot iron until they are dry. Use a pressing cloth if ironing on the right side. Slightly dampened cheesecloth is useful in pressing flannels, as it draws up the fluff of the material.

SILKS

Silks should be washed in the same manner as woolens (p. 33). Though there is less danger of shrinkage, and they are not so sensitive to alkaline solutions, silks are usually very delicate and must be handled carefully.

If the fabric is colored the suds should be lukewarm and even cooler than 110° F. There is less danger of injury to both fabric and color if soap bark (p. 32) is used instead of soap. Do not rub too hard, as the fibers may be broken or the gloss dulled. Squeezing and working in the suds is better than rubbing. Avoid strong soap and washing powders. Squeeze out the suds without twisting the fabric.

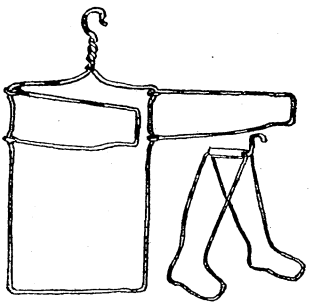


FIG. 10.—Wire forms for drying infants' garments

Rinse thoroughly in water of the same temperature, and remove the water finally by squeezing and patting between dry towels or heavy cloths. A final rinse in a bath containing a half ounce of 36 per cent acetic acid to a gallon of water tends to increase the luster. Do not wrinkle silks any more than necessary. If an extractor is used special precautions are needed, as long, hard extraction produces wrinkles very difficult to remove. Gum arabic and gelatin (p. 29) are good stiffening agents for most silks. Glue is excellent if the material is dark. Dry them as quickly as possible, but never in the sun. Rapid drying before an electric fan prevents watermarks and assists in retaining a good finish.

Ribbons, laces, and veilings are restored very nearly to their original finish by dipping in skimmed milk or whey. Be sure the milk fat has been removed, as it forms grease spots. Stretch over a smooth surface to dry and leave unironed. The odor of milk which is first apparent on the fabric soon disappears.

Silk scorches easily, and white silk becomes yellow when pressed with a very hot iron. Use a warm iron, protecting the fabric with cheesecloth. Iron on the wrong side. The fabric should be evenly damp, but not wet. If too wet and ironed with a hot iron it is likely to be stiff and papery, and if half wet and half dry it may be spotted.

Pongees are very easily watermarked, appearing darker where the water has been. This always occurs if a wet spot is ironed dry. To avoid such difficulties have the dampness very evenly distributed and iron on the wrong side, or iron the garment without dampening. Steaming is also effective. Use a double press cloth and sufficient water to moisten the upper layer. Thus no water reaches the garment, and the steam tends to remove previously formed watermarks. Finally finish by pressing on the wrong side.

ARTIFICIAL SILKS (RAYON)

Artificial silk or "rayon," as it is now being called, is much weaker when wet and must be laundered with particular care. The following suggestions are given by some manufacturers of knitted underwear, and are applicable to all artificial silk fabrics:

Artificial silk knitted underwear should always be washed in lukewarm water with soapsuds. Hot water makes the fabrics tender. Pure soap is essential. The fabric should not be rubbed, but it should be squeezed and rinsed repeatedly until clean. Rough finger nails or rings worn on the fingers tear wet artificial silk fabrics very easily. After laundering the garment should be hung over a line or in any other suitable place, but under no circumstances should clothespins be used. In ironing care must be taken to avoid too hot an iron; medium heat is best.

LACE CURTAINS

Measure both dimensions of the curtains before laundering, in order that they may be stretched to the correct size.

Use the general method (pp. 24 to 31) with the following precautions:

Handle the curtains carefully in the suds, squeezing and working them rather than rubbing. Many curtains that appear strong have been greatly weakened by the action of light and go to pieces when washed. If a machine is used inclose the curtains in net or muslin bags.

Rinse and blue white curtains as in washing ordinary fabrics.

Cream, ecru, and brown curtains may be retinted. Add a strong solution of tea or coffee, or a combination of the two, slowly to the hot water until the desired tint is produced when tested on a piece of muslin. Brown cotton dyes can be used in very weak solutions, and should be tested on a sample for shade. Remove the curtain as soon as the desired shade is obtained.

Starch the curtains if desired (p. 28), or, better still, use gelatin or gum arabic as a stiffener.

Dry curtains in stretchers, or spread a sheet on the floor, mark off the size desired, and pin the curtains to it, stretching where necessary. Stretchers that do not form scallops where the pins are inserted are best for straight-edged curtains.

PILLOWS

Pillows may be washed without removing the feathers. Scrub in a weak washing soda solution, using a good suds. Repeat in a second suds if necessary. Rinse in lukewarm water, changing it two or three times. If an extractor is used, extract, and then dry the pillows on a sheet in a warm place, preferably in the sun. Otherwise squeeze out as much of the excess water as possible and dry in the same way. Beat the pillows from time to time during drying.

A more satisfactory method is to transfer the feathers to a muslin bag two or three times the size of the ticking by sewing the edges of the openings of the ticking and the bag together and shaking the feathers from one to the other. Wash and dry the bag of feathers in the same way as a whole pillow. After the ticking has been washed separately apply a very stiff starch mixture to the inside with a sponge to close the pores of the material and prevent the

feathers from working through. Refill the ticking in the same way it was emptied.

INFECTED CLOTHES

Clothing and linen used by a person suffering with any contagious disease and handkerchiefs used during a cold need special treatment and should not be kept or washed with other clothes. Separate bags or other containers that can be sterilized or destroyed should be provided. Infected clothing may spread the disease directly to the persons who handle it or indirectly through contact with other articles. Boiling is the simplest method of sterilizing infected clothing, but the heat is likely to injure some fibers and set stains and dirt; therefore other methods are sometimes preferable. The United States Public Health Service gives the following directions for handling infected clothing:

Clothes worn by a person suffering from or exposed to a contagious disease, or bed linen, may be disinfected previous to washing by immersion in one of the following solutions for one hour:

A 5-per-cent dilution of the commercial solution of formaldehyde (formalin).

A 1-per-cent solution of phenol (pure carbolic acid).

A ½-per-cent solution of liquor cresolis compositus.

Infected clothing may also be readily sterilized by immersing in boiling water for 10 minutes.

Woolen goods may be disinfected by immersing in water maintained at a temperature of 165° F. for 20 minutes. If the goods are then carefully washed and dried, no undue shrinkage of the garments should result and the infectious agents of disease except those due to spore-forming bacteria, such as anthrax or gas gangrene, will have been destroyed.

The person who handles the infected garments should wear some form of apron to protect the clothing, and this apron should be disinfected immediately after the soiled clothes are handled. Also the hands and forearms should be thoroughly scrubbed with soap, water, and a nail brush for 10 minutes by the clock, and thoroughly rinsed in either the phenol solution or the cresolis solution mentioned above or in a 1 to 1,000 solution of bichloride of mercury.

These precautions are necessary in order to prevent the germs on the clothes being carried to the mouth of one handling the clothes or indirectly to the mouths of others.

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

May 20, 1926

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